

WHAT IS CLAIMED IS:

1. A non-volatile memory, comprising:

a substrate;

a word-line on the substrate;

5 a charge trapping layer between the substrate and the word-line;

a contact disposed over the substrate electrically connecting with the word-line;

and

a protective metal line electrically connecting with the contact and with a
grounding doped region in the substrate, wherein the protective metal line has a first
10 resistance higher than a second resistance of the word-line.

2. The non-volatile memory of claim 1, wherein the protective metal line has a
first width smaller than a second width of the word-line.

3. The non-volatile memory of claim 1, wherein the protective metal line has a
first thickness smaller than a second thickness of the word-line.

15 4. The non-volatile memory of claim 1, wherein the protective metal line is
electrically connected with the grounding doped region via another contact.

5. The non-volatile memory of claim 1, wherein the charge trapping layer
comprises a silicon oxide/silicon nitride/silicon oxide (ONO) composite layer.

6. The non-volatile memory of claim 1, wherein the word-line comprises:
20 a polysilicon line on the charge trapping layer; and
a metal silicide line on the polysilicon line.

7. The non-volatile memory of claim 6, wherein the metal silicide line
comprises tungsten silicide (WSi_x).

8. A method for fabricating a non-volatile memory, comprising the steps of:

forming a non-volatile memory cell on a substrate;

forming a grounding doped region in the substrate;

forming a first contact on the substrate electrically connecting with the grounding doped region;

5 forming a second contact on the substrate electrically connecting with a word-line of the non-volatile memory cell;

forming a protective metal line having a first resistance higher than a second resistance of the word-line over the substrate, wherein the protective metal line is electrically connected with the grounding doped region via the first contact and is

10 electrically connected with the word-line via the second contact; and

applying a large current to blow the protective metal line.

9. The method of claim 8, wherein forming the protective metal line comprises:

forming a metal layer over the substrate; and

patterning the metal layer to form the protective metal line.

15 10. The method of claim 8, wherein forming the non-volatile memory cell comprises:

forming a charge trapping layer on the substrate;

forming a polysilicon layer on the charge trapping layer;

forming a metal silicide layer on the polysilicon layer; and

20 patterning the metal silicide layer, the polysilicon layer and the charge trapping layer to form the word-line.

11. The method of claim 10, wherein the charge trapping layer comprises a silicon oxide/silicon nitride/silicon oxide (ONO) composite layer.

12. The method of claim 10, wherein the metal silicide layer comprises tungsten

silicide (WSi_x).

13. The method of claim 8, further comprising forming a dielectric layer over the substrate after the grounding doped region is formed in the substrate.

14. The method of claim 13, wherein the dielectric layer comprises
5 borophosphosilicate glass.